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ABSTRACT

This paper offers observations on how research and teaching can join forces to improve learning in the classroom by involving the faculty in classroom research. It explains the use of classroom assessment and techniques for gaining information on what students are learning and how well they are learning it. Classroom assessments are defined as efforts to understand learning, not classify the learners as is done through tests and quizzes. Two examples are provided of classroom assessments. The paper concludes by discussing the three major benefits that faculty reported as a result of their involvement in classroom assessment/research: the additional contact with colleagues about teaching and learning; the favorable student responses to the assessment process; and the enjoyment gained from studying teaching and learning in their disciplines and applying what they learn. (GLR)

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IMPROVING COLLEGE TEACHING AND LEARNING

Bridging the Gap Between Education Research and College Teaching

Everyone agrees that the quality of teaching and learning in higher education should be improved. And most educators would agree that basing teaching practice more solidly on research findings could help bring about that improvement. Nonetheless, the gap between research and teaching is a chasm rarely bridged. Why hasn't research had a more noticeable effect on college teaching?

Education researchers are often faulted for failing to address the practical, day-to-day needs of classroom teachers. Critics charge that researchers are more interested in publishing their findings in academic journals read by a few colleagues than in applying those findings to improve the education of many students. In their defense, researchers argue that their job is to seek answers to general questions, not to identify the specific implications of those findings for particular contexts. They counter that faculty, who should be anxious to apply and adapt the fruits of research, are at best uninterested and at worst actively resistant to change. And so the finger-pointing continues, but the central questions remain unanswered. How can we close — or at least narrow — this continuing research – practice gap? How can research and teaching join forces to improve learning where it matters most — in the classroom?

In 1986, K. Patricia Cross, Conner Professor of Higher Education at the University of California — Berkeley, developed a new approach to incorporating research into the college classroom. She named this approach "Classroom Research."

Classroom Research is designed to "reduce the distance between researchers and practitioners to zero" by involving faculty in the disciplined, systematic, and ongoing study of teaching and learning. Since faculty Classroom Researchers are investigating discipline-specific questions meaningful to them, they are much more likely to apply what they discover to improve learning in their own classes. In this form of applied or "action-oriented" inquiry, researcher and practitioner are one and the same person; and there is no gap.

Classroom Research and Traditional Education Research

Since the "research" in Classroom Research can initially cause confusion, it's useful to clarify the concept. Traditional education research seeks to discover general laws of teaching and learning and

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therefore often requires sophisticated knowledge of research design, sampling techniques, and statistical analysis. Classroom Research, on the other hand, aims to provide faculty with information on and insights into what their particular students are learning in their course. To do Classroom Research, faculty need expert knowledge of their field, an understanding of their students' characteristics, and a commitment to improving student learning. As a result, nearly all college teachers are capable of carrying out Classroom Research.

Getting Started

While all good teachers elicit feedback from students and pay attention to the responses, most have had little experience in systematically studying their students' learning. To get off to a successful start, faculty benefit from a simple, well-structured approach. For the past four years, Professor Cross and her associate, Dr. Thomas A. Angelo, have worked to provide that approach. In 1988, the Classroom Research Project was funded by the Ford Foundation and the Pew Charitable Trusts to develop and disseminate the techniques, tools, and training needed to make Classroom Research more systematic, widespread, and effective.

Most Classroom Researchers begin with simple, one-shot projects designed to discover what their students are learning and how well they are learning it. This first-stage Classroom Research is called Classroom Assessment, and the tools used to gather feedback are known as Classroom Assessment Techniques. For example, hundreds of teachers use the "One-Minute Paper" to find out quickly and easily what students have learned in class. The One-Minute Paper asks students to respond anonymously to the following questions at the end of class: What's the most important thing you learned during this class today? and, What question(s) remain uppermost in your mind? By scanning the responses, teachers can make adjustments in future classes. Feedback from these two questions helps teachers build on what students have already learned and focus on helping them master what they have not.

In their 1988 book, **Classroom Assessment Techniques: A Handbook for Faculty**, Cross and Angelo describe and illustrate 30 general techniques for gathering feedback in any discipline. Because faculty are interested in assessing different aspects of student learning, these 30 techniques are designed to elicit feedback in three broad areas: students' academic skills and intellectual development, students' self-awareness as learners, and students' reactions to teaching. Each technique includes a succinct description of the technique, an explanation of its purpose, and step-by-step directions on how to use it. There are suggestions on how to analyze the data and ideas for adapting the technique. To help faculty evaluate the techniques, pros, cons, and caveats are included for each.

Classroom Assessment, Teaching, and Testing

At first, many teachers confuse Classroom Assessment Techniques with tests and quizzes they now use, or with familiar teaching techniques. Unlike tests or quizzes, however, Classroom Assessments are non-graded and usually anonymous. The point of Classroom Assessments is not to evaluate the individual student's learning to assign a grade but to assess quickly the class's learning to fine-tune instruction. Put another way, the primary purpose of tests and quizzes is to classify learn*ers*, while that of Classroom Assessment is to understand learn*ing*.

How do Classroom Assessment Techniques differ from teaching techniques? Classroom Assessment Techniques are meant to be used *between* teaching and testing. While all faculty also use teaching techniques to achieve their instructional goals, Classroom Researchers use assessment techniques to find out how well they are achieving those goals. If teaching and testing are two legs of the instruction stool, Classroom Assessment is the third leg that can provide more reliability.

From Classroom Assessment to Classroom Research

Classroom Assessment is a useful and easily implemented first step in Classroom Research, but

it is only one way to study the effects of instruction on learning. A number of teachers have gone on to design and carry out semester- or year-long studies — comprehensive inquiries that are true examples of Classroom Research. For instance, a physics professor videotaped his students as they solved a problem and interviewed them about how they visualized as they worked. By studying their learning styles, he found that the best problem-solvers didn't visualize more but rather more flexibly, using different "camera angles" and "zooming" in and out. Based on the results of his Classroom Research project, he has incorporated explicit instruction on how to visualize in all of his courses.

In another case, a nursing professor who felt that her students' low self-esteem was hindering their learning in clinical settings designed a multi-stage Classroom Research project to test her assumptions. Through her year-long study, she discovered that the nurses-in-training with the lowest self-esteem were engaging in subconscious, negative mental "self-talk" and impeding their performance and learning. The professor was then able to help students control their "self-talk" and make it work for them by teaching them strategies for mental self-management.

What's the Payoff? How Do Faculty and Students Benefit?

Since 1987, Cross and Angelo have presented Classroom Research to more than 5,000 educators from Alaska to Florida. In workshop settings, Dr. Angelo has trained more than 1,500 faculty and faculty developers in Classroom Assessment, and many of those trained have gone on to offer workshops to their colleagues. Why has this simple approach generated so much interest?

Faculty report three major benefits from their involvement in Classroom Assessment/Research projects. First, because most campus projects are collaborative, faculty benefit from talking with their colleagues about teaching and learning. This approach gives them a shared "vocabulary" and a specific, practical focus — assessing and improving student learning — for these valuable discussions. Second, faculty report surprisingly positive student responses to Classroom Assessment and higher classroom participation. Many speak of "bonding" with students, of playing "on the same side of the net." Students not only benefit from prompt feedback on their learning, they appreciate it. And third, faculty enjoy the excitement of studying teaching and learning in their disciplines and applying what they learn. Many talk in terms of intellectual renewal.

While no careful, large-scale studies have yet been carried out on the effects of Classroom Research on student learning, the anecdotal evidence is overwhelmingly positive. When asked, students generally report that they not only like the frequent assessments, they also benefit from them. They feel that they learn the course content better, and they learn how to assess their own learning. Students also value the attention, the care, and the respect that faculty evidence when they work with students to improve their learning.

Solid, confirmatory studies are an important next step in the development of this approach, but the indicators are promising. Given all that we know about learning, it makes sense, after all, that students will learn better when they are actively engaged in monitoring their own learning, when they get prompt feedback, and when they are convinced that their instructors are interested in and aware of their progress. The other important gap that Classroom Research can help bridge is that between teachers and learners. When research, teaching, and learning work to achieve common purposes, great things can happen.

— Thomas A. Angelo

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This **Accent** is based on the research of K. Patricia Cross and Thomas A. Angelo for the Classroom Research Project. The publication, **Classroom Assessment Techniques: A Handbook for Faculty**, is currently available from NCRIPTAL. Based on their experience with Classroom Researchers across the country, Professors Cross and Angelo are preparing a new, extensively revised, and expanded version of the handbook, which Jossey-Bass expects to publish in the fall of 1991. For information about other products of the Classroom Research Project, contact K. Patricia Cross, Conner Professor of Higher Education, Graduate School of Education, Tolman Hall, University of California, Berkeley, California 94720.

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